Remarks

Claims 1-43 are pending in this application. Claims 1-42 are original and Claim 43 is previously presented.

The Applicant notes that the Examiner incorrectly states that Claims 1-42 are pending in this application on line 4) of the "Office Action Summary." Further, the Examiner does not appear to have rejected Claims 43 in the Office Action of Nov. 16, 2006. As such, the Applicant requests that the Examiner allow Claim 43. The Applicant also respectively points out that the Examiner cannot rejected Claim 43 for the first time in a Final Office Action.

Claims 1-9 and 11-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fletcher et al. (2002/0178238) in view of Vishin et al. (5,860,146). The Applicant traverses these rejections.

Regarding Claim 1,

Claim 1 recites:

1. (Original) A caching server comprising:
> *an answer cache configured to access answer information through a flat data structure;*
> *a referral cache configured to store referral information; and*
> *computer instructions configured to translate a domain name into DNS information by examining the answer cache and, responsive to the results of examining the answer cache, examining the referral cache.*

In rejecting Claim 1 the Examiner admits that Fletcher does not teach an answer cache having a flat data structure. Rather, the Examiner suggests that Vishin teaches these elements of Claim 1, specifically that the "remote translation lookaside buffer (RTLB)" of Vishin is "similar to" and thus teaches the *"answer cache"* of Claim 1. The Applicant traverses these suggestions.

First, it is the position of the Applicant that the RTLB 160 of Vishin does not teach the *"answer cache"* of Claim 1 and, as such, even in combination the cited art does not teach all of the limitations of Claim 1, as required for a rejection under §103(a).

A prima facie case for rejection under §103(a) requires that the prior art reference (or references when combined) teach or suggest all the claim limitations. (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03.)

The RTLB 160 of Vishin is a table of partial physical memory addresses used to translate a physical memory address into a remote physical memory address, (Vishin Col. 4 lines 42-62). In contrast, the *"answer cache"* recited in Claim 1 is *"an answer cache configured to access answer information through a flat data structure."* One of ordinary skill in the art would understand *"answer information"* to include, for example, an Internet Protocol (IP) address provided in response to DNS request. One of ordinary skill would not expect "answer information" as received from an "answer cache" to include "a remote physical memory address." An IP address and a physical memory address are fundamentally different non-interchangeable things. Specifically, a physical memory address is a hardware address of a memory location within a memory device, while an IP address is an address used by network elements to communicate data packets according to IP standards. A physical memory address could not be used in place of an IP address, and does not appear to be provided as an answer to a DNS request. As such, the RTLB of Vishin is not equivalent to the *"answer cache"* recited in Claim 1.

Therefore, even if the teachings of Fletcher were modified to include the RTLB of Vishin, these combined teachings would not include an *"answer cache"* as recited in Claim 1, and Claim 1 is not anticipated by the cited art.

Second, it is the position of the Applicant that the combination suggested by the Examiner does not have a reasonable expectation of success, as required for a rejection under §103(a).

A prima facie case for rejection under §103(a) requires a reasonable expectation of success. (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03.)

As recited in lines 5-7 of Claim 1, the *"answer cache"* of Claim 1 can be examined by computer instructions to *"translate a domain name into DNS information."* It is unclear to the Applicant how the RTLB 160 of Vishin could be used to translate a domain name into DNS information. As such, the proposed combination does not appear to have a reasonable expectation of success. The Applicant, therefore, requests that the Examiner explain how a table of partial physical memory addresses intended for use in translating a physical memory address into a remote physical memory address, could be used to *"translate a domain name into DNS information,"* as recited in Claim 1, or allow Claim 1 and those claims that depend therefrom.

Third, in combining the teachings of Fletcher and Vishin, the Examiner appears to be doing more than merely combining elements, e.g., the Examiner is doing more than modifying Fletcher by addition of an element taught in Vishin. Specifically, the Examiner appears to be suggesting that the teachings of Vishin be changed substantially in manners unsupported by either reference in order to fit the needs of the Examiner's rejection, and that these changed teachings be added to Fletcher. While the combination of elements may be reasonable under §103(a), making substantial modifications to these

elements, without support or suggestion from the specification of either, in order for these elements to function together is not proper.

Fourth, it is the position of the Applicant that the motivation to combine the cited art that is suggested by the Examiner does not meet the requirements of §103(a).

A prima facie case for rejection under §103(a) requires some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03.)

As a motivation to combine the cited art, the Examiner states, "[b]y using the hash table (i.e. the flat data structure) in answer cache as taught by Vishin, it reduces the number of memory accesses and as a result of that, it is faster than the lockup in the tree structure."

The Applicant traverses the Examiner's statement on the grounds that Vishin does not appear to teach a "hash table." The Applicant is unable to find any teaching within Vishin that the RTLB 160 is a "hash table." Since Vishin does not teach the use of a "hash table," any speed advantage that could theoretically be achieved therefrom cannot provide the basis for combining Fletcher and Vishin. The Applicant, therefore, requests that the Examiner specifically point out a teaching that the RTLB 160 of Vishin is a "hash table" or allow Claim 1 and those claims that depend therefrom. Further discussion regarding the lack of teaching in Vishin of a "hash table" is made below with respect to Claim 2.

Further, the Applicant is unable to find any support within the cited art that use of the RTLB table of Vishin "reduces the number of memory accesses" as suggested by the Examiner. To the contrary, the use of a table for translating a physical memory address would appear to result in a greater number of memory accesses because the RTLB table must be accessed first, rather than accessing the physical memory directly. The Applicant, therefore, requests that the Examiner provide support for this suggestion or allow Claim 1 and those claims that depend therefrom.

Fifth, the Examiner does not provide any evidence that the suggested motivation would be known to one of ordinary skill in the art at the time of the invention. Rather, the Examiner appears to have defined a problem (lacking a hash table) in terms of its solution (adding a hash table). As stated in In re Beattie, 974 F.2d 1309, 1312 (Fed. Cir. 1992) "[d]efining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness." The Applicant, therefore, requests that the Examiner provide either a motivation to combine the cited art from within the cited art or other evidence that the suggested motivation would be known to one of ordinary skill in the art at the time of the invention.

Sixth, it is the position of the Applicant that the rejection under §103(a) is improper because the cited references are in substantially different fields of art, and as such one of ordinary skill in the art of the invention would not look to combine the features of Vishin with those of Fletcher.

In In re Oetiker, it was held that "the combination of elements from non-analogous sources, in a manner that reconstructs the applicant's invention only with the

benefit of hindsight, is insufficient to present a prima facie case of obviousness." 977 F.2d at 1447.

Further, MPEP §2141.01(a) provides that "[t]he examiner must determine what is 'analogous prior art' for the purpose of analyzing the obviousness of the subject matter at issue. In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

The claimed invention is in the field "network communications," (Application as filed, paragraph [0001]), and more specifically some claimed embodiments are in the fields of Internet Protocol and Domain Name Systems. In contrast, Vishin relates to "virtual memory management subsystems, and particularly to a memory controller that manages access to remote physical addresses," (Col. 1 lines 6-8). The Applicant maintains that the fields of network communications and virtual memory management are substantially different. The first deals with long range software managed communications, while the second deals with physically managed local memory access. It is, therefore, the position of the applicant that the one of ordinary skill in the art of network communications would not look to the teachings of Vishin to modify the teachings of Fletcher.

As has been held by the Courts, "to establish a prima facie case, the USPTO may not rely on unsupported assertions about the level of ordinary skill in the art or bare conclusions that one of ordinary skill could apply such skill to obtain the claimed invention." In re Sun, 31 USPQ2d 1451, 1456 (Fed. Cir. 1994)(Mayer, J. concurring).

The Applicant, therefore, requests that the Examiner provide evidentiary support for the suggestion that one of ordinary skill in the art of the invention would look to Vishin to modify Fletcher, or allow Claim 1 and those claims that depend therefrom.

Regarding Claims 11, 13, 17, 26, 34 and 38-39:

In rejecting Claims 11, 13, 17, 26, 34 and 38-39 the Examiner states that these claims "are also rejected based on the same rationale as the rejection of claim 1." However, the Applicant respectfully points out that Claims 11, 13, 17, 26, 34 and 38-39 include numerous limitations not included in Claim 1 and not addressed by the Examiner as pointed out previously. The Examiner is reminded that the cited art must include all limitations of each claim in order to establish a prima facie case for rejection under §103(a).

More specifically:

Claim 11 is directed toward

a computer readable medium having stored thereupon computer code comprising:

...

a code segment configured to examine a first cache to find the DNS information, the first cache including a flat data structure and configured to store the DNS information or a pointer to the DNS information; and

a code segment configured to initiate a search of a second cache if the DNS information is not found by examining the first cache, the second cache configured to store data referring to further locations on a computer network wherein the DNS information may be found.

These are limitations not included in Claim 1 and do not appear to be taught by the cited art even in combination. For example, the cited art does not appear to teach "*the first cache including a flat data structure and configured to store the DNS information or a pointer to the DNS information.*" Further, the cited art does not appear to teach "*a code segment configured to initiate a search of a second cache if the DNS information is not*

found by examining the first cache, the second cache configured to store data referring to further locations on a computer network wherein the DNS information may be found." The Applicant, therefore, requests that the Examiner specifically point out these teachings within the cited art or allow Claim 11 and those claims that depend therefrom.

Claim 13 recites, in part, "*means for examining a first cache to find the DNS information,*" and "*means for searching a second cache ... the second cache configured to store data referring to further locations on the computer network wherein the DNS information may be found.*" These limitations are not included in Claim 1 and do not appear to be taught by the cited art. For example, the cited art does not teach both a first cache that can be examined to find "*DNS information*" in combination with "*a second cache configured to store data referring to further locations on the computer network wherein the DNS information may be found.*" The Applicant, therefore, requests that the Examiner specifically point out these teaching within the cited art or allow Claim 13 and those claims that depend therefrom.

Claim 17 recites, in part, "*a caching server including a first data structure configured for translating the domain name into DNS information, and means for examining the first data structure in a time that is essentially constant as a function of a number of labels comprising the domain name.*" These limitations are not included in Claim 1 and do not appear to be taught by the cited art. For example, the cited art does not appear to teach "*means for examining the first data structure in a time that is essentially constant as a function of a number of labels comprising the domain name.*" The Applicant, therefore, requests that the Examiner specifically point out these teaching within the cited art or allow Claim 17 and those claims that depend therefrom.

Claims 26 and 34 are believed to be allowable for at least the same reasons as Claim 1.

Claims 38 and 39 recite *"wherein the answer cache is configured to store answer information and the referral cache is configured to store referral information."* These limitations are not included in Claim 1 and do not appear to be taught by the cited art. Specifically, Claim 1 does not teach *"the answer cache is configured to store answer information and the referral cache is configured to store referral information."* As pointed out elsewhere herein, those features of Vishin that the Examiner suggests teaches *"the answer cache"* is taught to include "physical addresses" and not *"answer information,"* as recited in Claims 38 and 39. The Applicant, therefore, requests that the Examiner specifically point out these teaching within the cited art or allow Claims 38 and 39.

Regarding Claim 2,

Claim 2 recites:

2. (Original) The caching server of claim 1, wherein the flat data structure is a hash table.

In rejecting Claim 2, the Examiner states "Vishin teaches that the flat data structure is a hash table (i.e. 122 in Fig. 5)(e.g. see the abstract and Fig. 5)." The Applicant traverses this statement. First, the Applicant is unable to identify any teaching in Vishin that the RTLB 160 includes a hash table. To the contrary, as illustrated in Vishin FIG. 6, the RTLB 160 is taught to include an index column (labeled "index) having a sequential series of numbers (labeled "0 ... 31). Thus, even if one were to assume for the sake of argument that the RTLB 160 of Vishin was a flat data structure, this flat data structure is clearly not a hash table.

Regarding Claims 25, 29 and 35, the Applicant believes that Claims 25, 29, and 35 are allowable for at least the same reasons as Claim 2, and those claims from which they depend.

Regarding Claim 19, the Applicant believes that Claim 19 is allowable for at least the same reasons as Claims 1, 2 and 13.

Regarding Claim 3,

Claim 3 recites:

3. (Original) The caching server of claim 1, wherein the flat data structure includes pointers to a tree data structure.

In rejecting Claim 3, the Examiner states "Fletcher teaches that when the requested address information is not found at the terminal, the query from the local host is forwarded to the communication network (i.e. see paragraph [0008]). Therefore, the pointer/link has to be inherently stored/present in the local terminal cache that points to the remote host for the requested information." The Applicant traverses this statement.

MPEP §2112 provides that "[t]he fact that a certain result or characteristic <u>may</u> occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic" citing *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). Thus, a mere possibility is insufficient to show inherency. Further, "[i]n relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic <u>necessarily flows</u> from the teachings of the applied prior art" citing *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

The Applicant respectfully points out that the system of Vishin is a hardware based system in which communication can take place purely based on hardwired

connections such as the "Match Signals" and "Filter Selector 164" illustrated in FIG. 6 of Vishin. It is, therefore, not inherent that the RTLB 160 of Vishin, which the Examiner suggests teaches an answer cache, include pointers as recited in Claim 13.

Further, even if for the sake of argument, it were assumed that the RTLB 160 of Vishin included a pointer, there does not appear to be any teaching of "DNS information" in Vishin, much less that these hypothetical pointers point to DNS information. To the contrary, as shown in FIG. 6 of Vishin, the entries in the RTLB 160 are coupled to RPPA entries in SRAM 166. Vishin does not appear to include any suggestion that these RPPA entries include DNS information. The Applicant, therefore, requests that the Examiner specifically point out a teaching within Vishin that RTLB 160 includes "DNS information or a pointer to the DNS information" as recited in Claim 3, or allow Claim 3.

In rejecting Claim 3, the Examiner further states "Fletcher teaches the further limitation of pointers pointing to a tree data structure (e.g. see paragraph [0005])." However, the Applicant respectfully points out that Claim 3 recites that the "flat data structure includes pointers to a tree data structure" and the Examiner is citing Vishin, not Fletcher, as teaching the "flat data structure." Specifically, the Examiner cites the RTLB 160 of Vishin as teaching the flat data structure of Claim 13, and the RTLB 160 is not taught to include "pointers to a tree data structure." The Applicant, therefore, requests that the Examiner specifically point out a teaching that the RTLB 160 of Vishin includes "a pointer to a tree data structure," or allow Claim 3.

Regarding Claims 5, 20-23 and 27-28, the Examiner states that "Claims 5, 20-23 and 27-28 are also rejected based on the same rationale as the rejection of claim 3." The Applicant traverses these rejections and respectively points out that Claims 5, 20-23 and

27-28 include numerous limitations not found in Claim 3, or Claim 1 from which Claim 3 depends. As such, the Examiner does not appear to have addressed these limitations as required for a proper rejection under §103(a).

Specifically, Claim 5 recites "*wherein the flat data structure includes pointers to a tree data structure, and the tree data structure is included in the referral cache.*" The Applicant requests that the Examiner specifically point out a teaching of a flat data that includes pointers to a tree data structure in a referral cache or allow Claim 5.

Specifically, Claim 20 recites "*wherein the hash table is configured to store the pointer to the answer information.*" The Applicant requests that the Examiner specifically point out a teaching of a hash table configured to store a pointer to answer information, or allow Claim 20.

Specifically, Claim 23 recites "*wherein the tree data structure is configured to store pointers to referral data.*" The Applicant requests that the Examiner specifically point out a teaching of a tree data structure configured to store pointers to referral data, or allow Claim 23.

Specifically, Claim 27 recites "*wherein the flat data structure is configured to store the answer information.*" The Applicant requests that the Examiner specifically point out a teaching of a flat data structure configured to store answer information, or allow Claim 27.

Specifically, Claim 28 recites "*wherein the flat data structure is configured to store a pointer to the answer information.*" The Applicant requests that the Examiner specifically point out a teaching of a flat data structure configured to store pointers to answer information, or allow Claim 28.

The Applicant believes that Claims 21 and 22 are allowable for at least the same reasons as Claim 19, from which they depend.

Regarding Claim 4,

Claim 4 recites:

4. (Original) The caching server of claim 1, wherein the flat data structure includes pointers to a tree data structure, and the tree data structure is configured to store answer information and referral information.

In rejecting Claim 4, the Examiner states "Fletcher teaches that the tree data structure (i.e. the hierarchical structure) is configured to store answer information and referral information (e.g. see paragraphs [0005]-[0006]." The Applicant traverses this statement.

In the combination suggested by the Examiner, it appears that the flat data structure is suggested as being taught by the RTLB 160 of Vishin, however, the RTLB 160 of Vishin is not taught to include pointers to a tree data structure, much less a tree data structure "*configured to store answer information and referral information*," as recited in Claim 4. As discussed above the RTLD 160 of Vishin is taught to include information for translating remote physical memory addresses. The Applicant, therefore, requests that the Examiner specifically point out a teaching that the RTLB 160 of Vishin includes pointers to a tree data structure and that that tree data structure includes "*answer information and referral information*," or allow Claim 4.

Regarding Claims 7, 8, 9, 31 and 41 the Applicant believes that Claims 7, 8, 9, 31 and 41 are allowable for at least the same reasons as those claims from which they depend.

Regarding Claims 12, 16, 18, 24, 32 and 42, the Applicant believes that Claims 12, 16, 18, 24, 32 and 42 are allowable for at least the same reasons as those claims from which they depend.

Regarding Claims 14 and 15,

Claim 14 recites:

14. (Original) The computer network of claim 13, further including means for storing data in the first cache such that a time required to examine the first cache is essentially constant as a function of a number of labels comprising the domain name

Claim 15 recites:

15. (Original) The computer network of claim 13, further including means for storing data in the first cache such that a time required to examine the first cache is essentially constant as a function of a size of the first cache.

In rejecting Claims 14 and 15, the Examiner states:

Fletcher teaches means for storing data in the first cache such that a time required to examine the first cache is essentially constant as a function of a number of labels comprising the domain name, i.e. the first cache is the local cache, which uses the flat data structure and since the number of cache entries to search in this flat data structure local cache is fixed/constant as a function of (i) a number of labels comprising the domain name and (ii) a size of the first/local cache (e.g. see paragraph [0008]).

The Applicant traverses this statement.

First, in the rejection of Claim 1 the Examiner admits that Fletcher does not teach an answer cache configured to store data in a flat data structure. This admission appears to be directly contradictory to the above statement made in rejecting Claims 14 and 15. The Applicant agrees that Fletcher does not teach a flat data structure. The Applicant, therefore, requests that the Examiner withdraw the rejections of Claims 14 and 15.

Second, even assuming for the sake of argument that Fletcher taught a flat data structure, there is no indication that such a data structure would have a structure that

satisfies the conditions that "*a time required to examine the first cache is essentially constant as a function of a number of labels comprising the domain name*" or "*a time required to examine the first cache is essentially constant as a function of a size of the first cache*," as recited in Claims 14 and 15, respectively. The Applicant respectively points out that these are <u>not</u> normal characteristics of flat data structures. To the contrary, one of ordinary skill in the art would expect that a time required to search a flat data would grow linearly with the size of the cache. The Applicant, therefore, requests that the Examiner specifically point out how Fletcher teaches these limitations of Claims 14 and 15, or allow Claims 14 and 15.

The Applicant further believes that Claims 14 and 15 are allowable for at least the same reasons as Claim 13, from which they depend.

Regarding Claim 30, the Applicant believes that Claim 30 is allowable for at least the same reasons as Claims 14, 15 and Claim 26 from which it depends.

Regarding Claim 33 and 36,

Claim 33 recites:

33. (Original) A method of storing data in a cache, the method comprising:
requesting DNS information;
receiving data in response to the request;
classifying the response received; and
storing the data received in either a referral cache or an answer cache based on the classification.

In rejecting Claims 33 and 36, the Examiner states "Fletcher teaches ... requesting DNS information; receiving data in response to the request; classifying the response received; and storing the data received in either a referral cache or an answer cache based on the classification (e.g. see paragraphs [0005] and [0008])." The Applicant traverses this statement.

The Applicant has reviewed Fletcher, and in particular those paragraphs cited by the Examiner, however, the Applicant is unable to identify any teaching of "*classifying the response received; and storing the data received in either a referral cache or an answer cache based on the classification,*" as recited in Claim 33. The Applicant, therefore, requests that the Examiner specifically point out teaching of these limitations within the cited art, or allow Claims 33, 36 and those claims that depend therefrom.

The Applicant believes that Claim 36 is allowable for at least the same reasons as Claim 33 from which it depends.

Regarding Claim 37, the Applicant believes that Claim 37 is allowable for at least the same reasons as Claim 33 from which it depends.

Regarding Claim 40, the Applicant believes that Claim 40 is allowable for at least the same reasons discussed herein with respect to Claims 1 and 33.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fletcher in view of Vishin, further in view of Ramanathan (6,182,136).
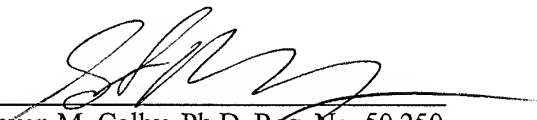
Regarding Claim 10, the Applicant believes that Claim 10 is allowable for at least the same reasons as Claim 1, from which it depends.

Applicant believes that all pending claims are allowable and respectfully requests that the

Examiner issue a Notice of Allowance. Should the Examiner have questions, the

Applicant's undersigned representative may be reached at the number provided.

Respectfully submitted,

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Date: <u>February 16, 2007</u>

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